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0.5 inch Hermetic Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 40 MHz to 100 MHz With Phase Noise of -118 dBc/Hz



Voltage Control Oscillators Technical Data Sheet PE1V13005

Features

- 40 MHz to 100 MHz Bandwidth
- -118 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.5V to 20V
- Pout = +11.5 dBm
- Harmonics = -14 dBm
- RoHs Compliant Assembly
- Hermetically Sealed Rugged SMT Package
- Designed to meet Fine & Gross leak per MIL-STD-883 Method 1014
- Designed to meet MIL-STD-202 Environmental Conditions

Applications

- Phase Locked Loop
- Function Generators
- Frequency Synthesizers
- Receivers
- Electronic Jamming Equipment
- Local Oscillator
- Wireless Communications
- SATCOM
- Optical Communications
- Military Electronic Systems

Description

The PE1V13005 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 40 MHz to 100 MHz frequency band with a voltage tuning range from 0.5V to 20V. This design features exceptional phase noise performance of -118 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11.5 dBm and 2nd harmonic output of -14 dBc typical. The assembly is RoHs compliant and available in a hermetically sealed 0.5" surface mount package with exposed leads that meets MIL-STD-883, Method 1014 fine & Gross leak conditions. This rugged package operates over a temperature range of -40oC to +85oC and is designed to also meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	40		100	MHz
Tuning Voltage	0		20	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		18	20	mA
Phase Noise @ 1kHz Offset		-90	-87	dBc/Hz
Phase Noise @ 10kHz Offset		-118	-116	dBc/Hz
Phase Noise @ 100kHz Offset		-138	-136	dBc/Hz
Output Power	+10	+11.5	+12.5	dBm
Tuning Sensitivity (Kvco)	2		5	MHz/V
Pushing		0.2	0.4	MHz/Volt
Pulling (pk-pk)		100	300	KHz
Tuning Port Capacitance		180		pF
Load Impedance		50		Ohms
2nd Harmonics		-14	-10	dBc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: 0.5 inch Hermetic Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 40 MHz to 100 MHz With Phase Noise of -118 dBc/Hz PE1V13005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
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Mechanical Specifications

Size

Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.215 in [5.46 mm]
Weight	0.02 lbs [9.07 g]
Mounting Surface Material and Plating	Copper Clad, Nickel, Gold
Design	Hermetic
Package Style	Surface Mount

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +125 deg C
Humidity	MIL-STD-202, Method 103, 90% RH, +65 C
Shock	MIL-STD-202, Method 213I
Vibration	MIL-STD-202, Method 204D
Temperature Cycle	MIL-STD-202, Method 107B
Thermal Shock	MIL-STD-883, Method 1014A, 1 x 10-8 atm cc/s
Hermetic Seal	MIL-STD-883 Method 1014C
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.



Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant	
REACH Compliant	12/17/2015

Plotted and Other Data

Notes:

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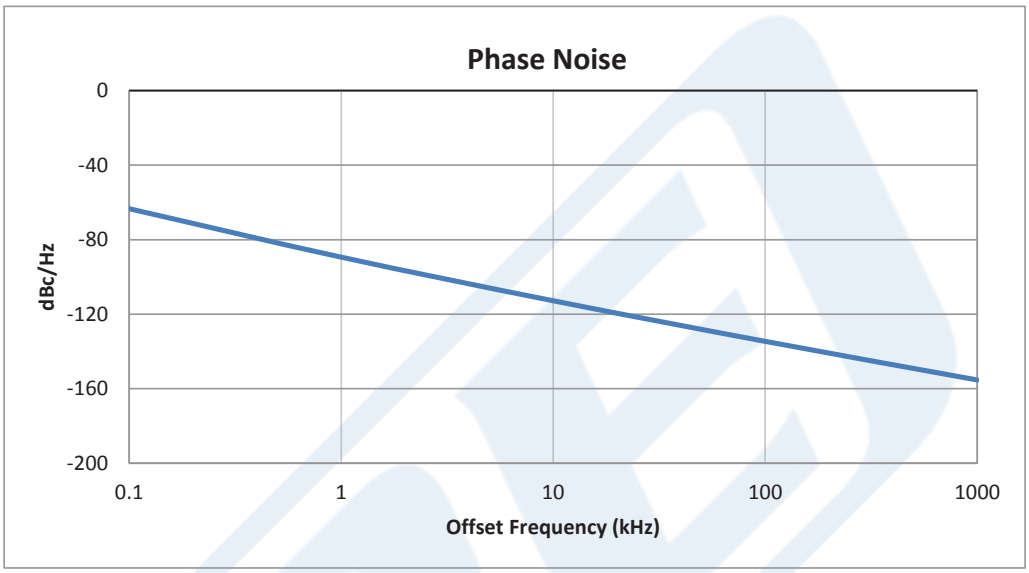
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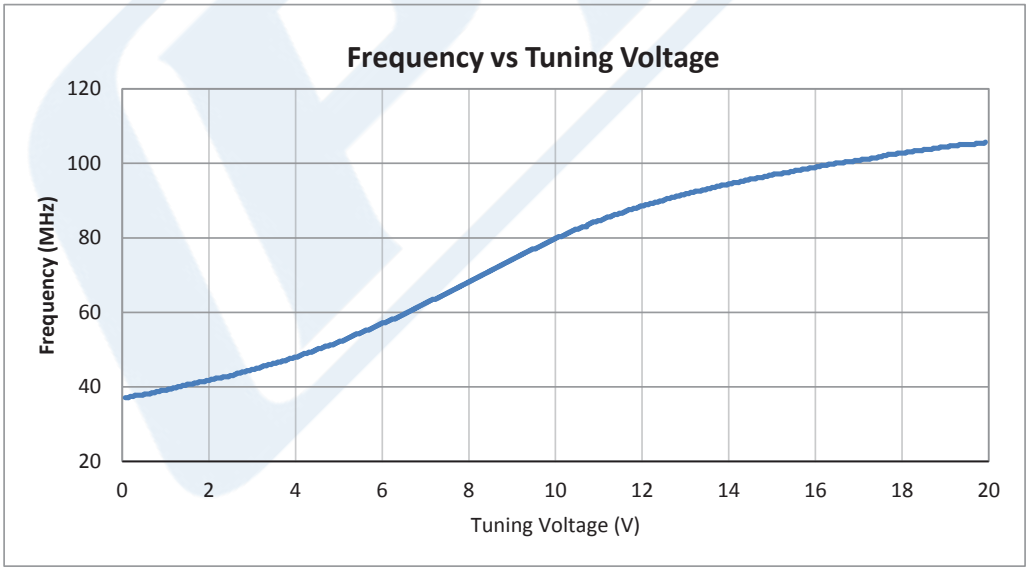
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Typical Performance Data





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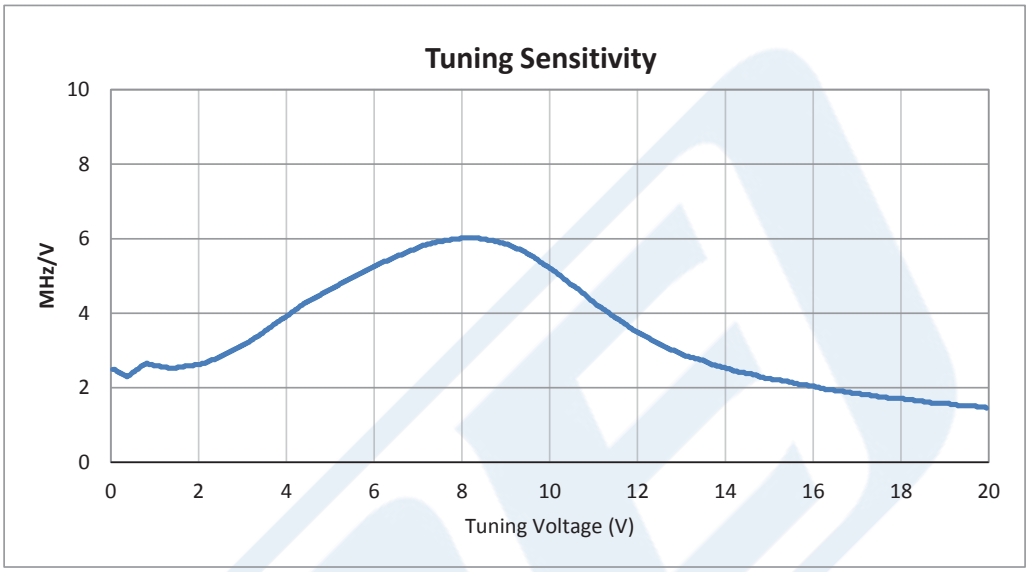
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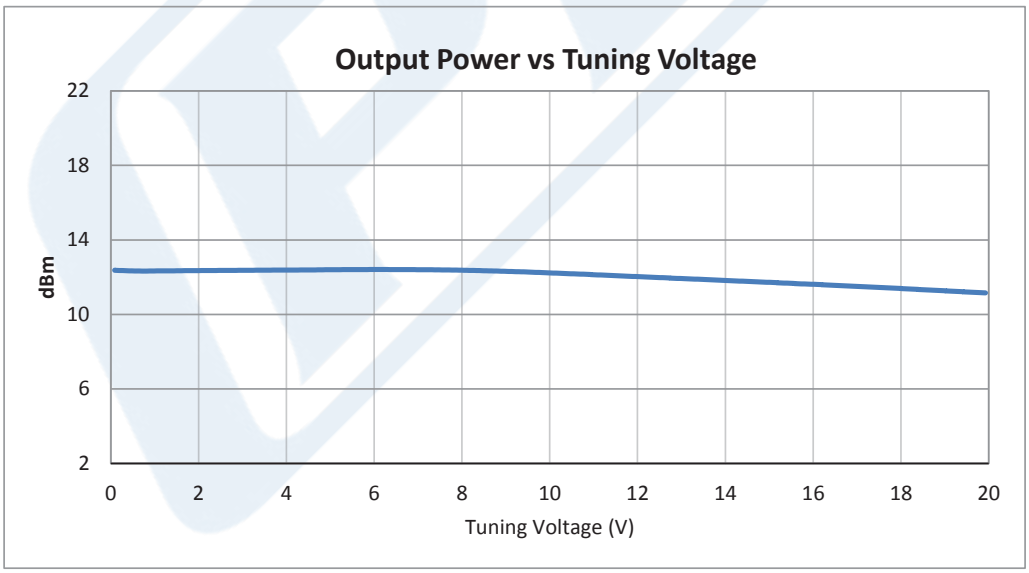
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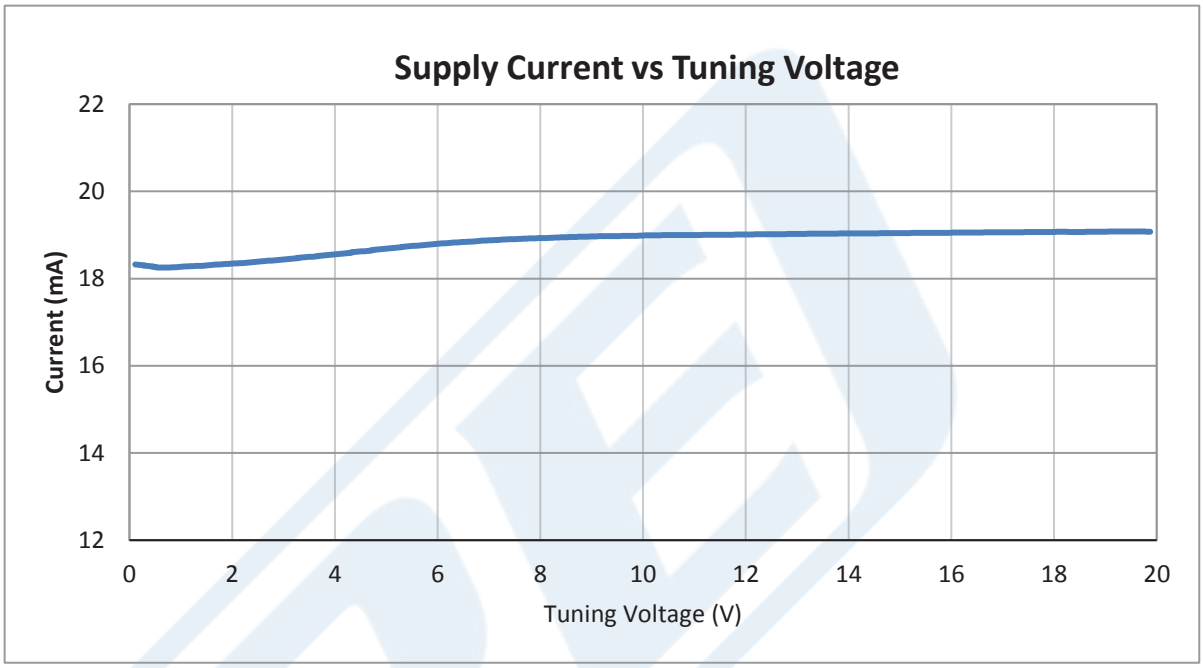
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URL: http://www.pasternack.com/surface-mount-smt-voltage-controlled-oscillator-vco-100-mhz-pe1v13005-p.aspx

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

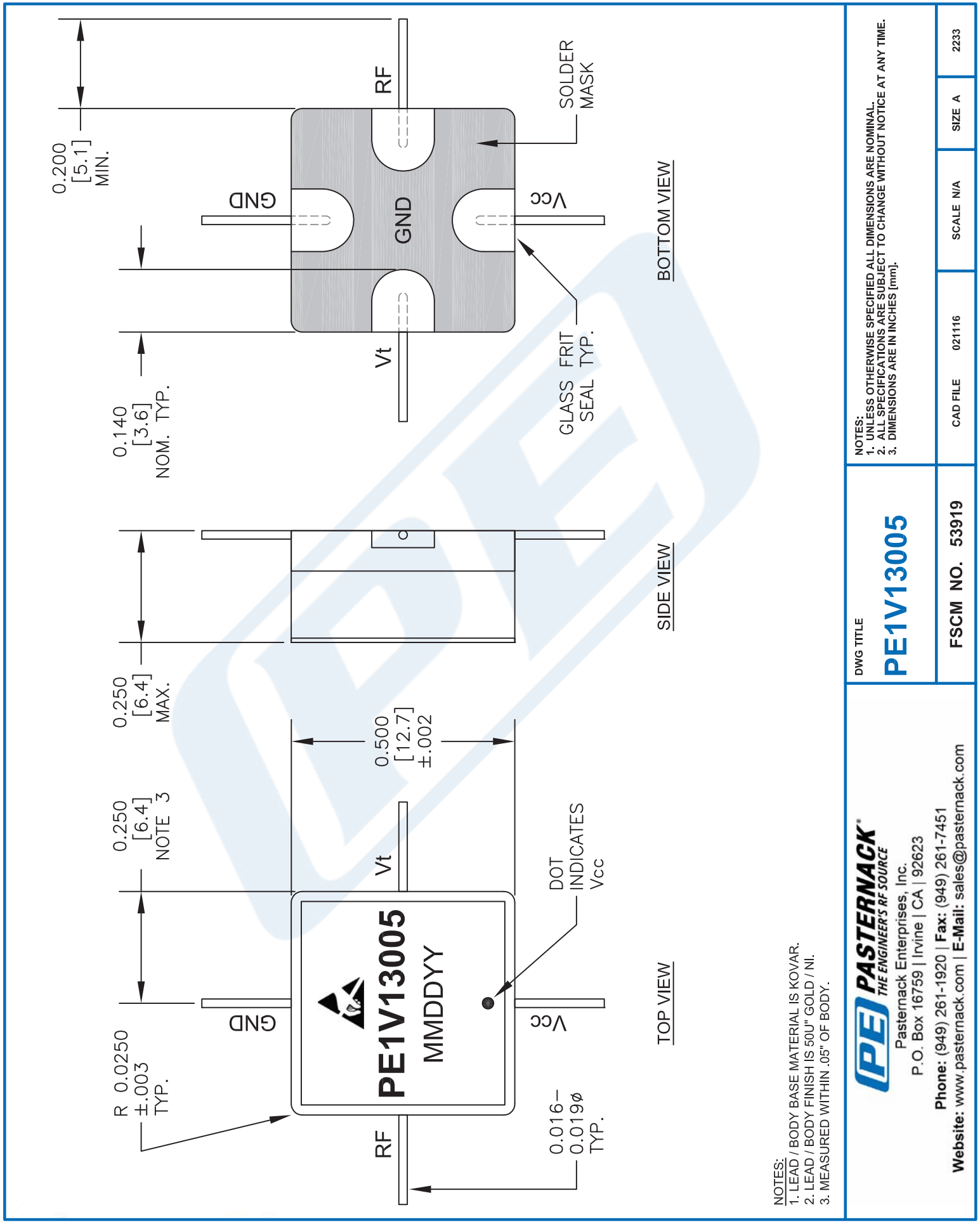
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PE1V13005 CAD Drawing

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NOTES:
1. LEAD / BODY BASE MATERIAL IS KOVAR.
2. LEAD / BODY FINISH IS 50U" GOLD / NI.
3. MEASURED WITHIN .05" OF BODY.

NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].

DWG TITLE: PE1V13005

FSCM NO. 53919 | CAD FILE 021116 | SCALE N/A | SIZE A | 2233

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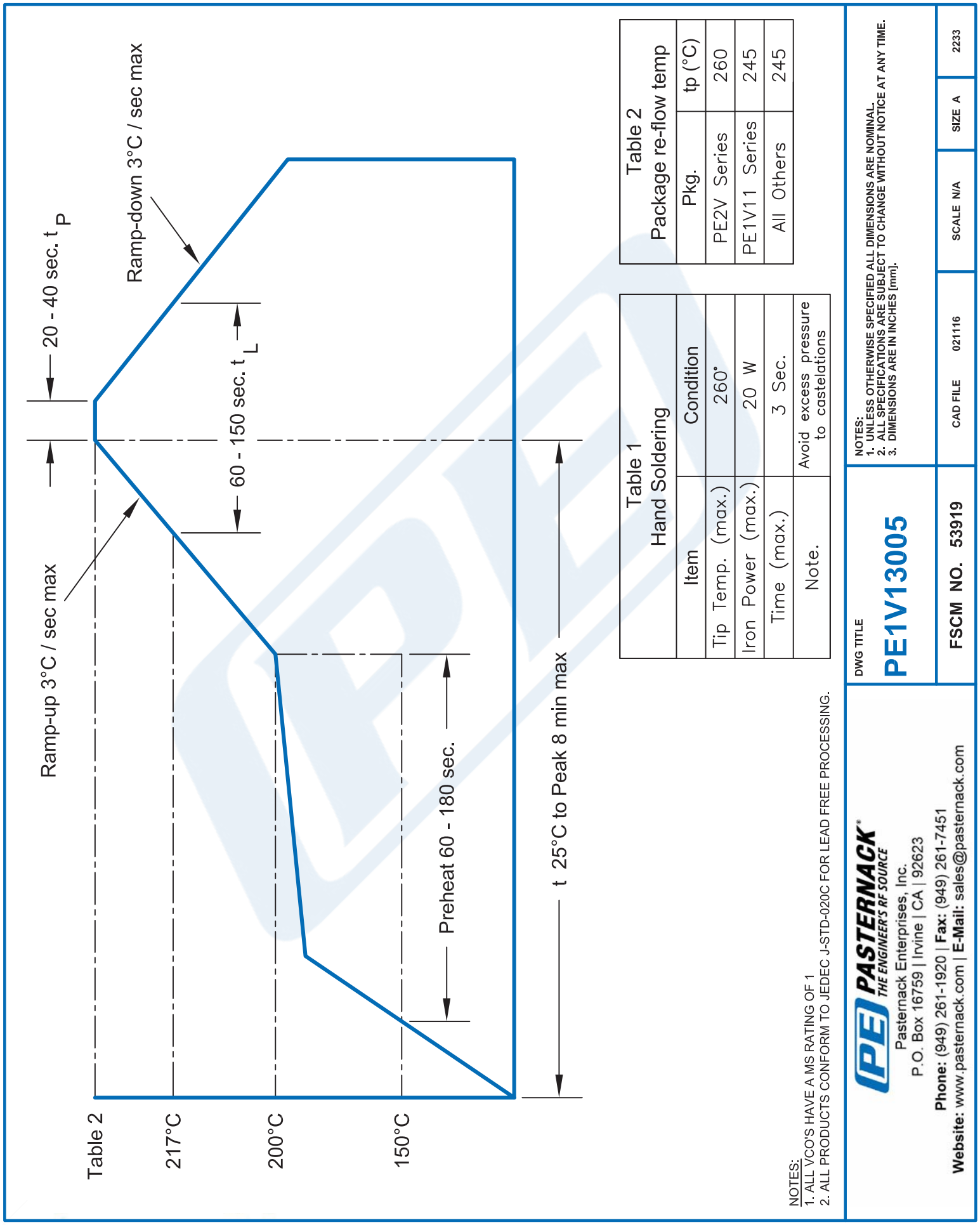


Table 1
Hand Soldering

Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

Table 2
Package re-flow temp

Pkg.	tp (°C)
PE2V Series	260
PE1V11 Series	245
All Others	245

NOTES:
1. ALL VCO'S HAVE A MS RATING OF 1
2. ALL PRODUCTS CONFORM TO JEDEC J-STD-020C FOR LEAD FREE PROCESSING.

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